

What is claimed is:

1. An intake system for preparing combustion air for an internal combustion engine of a portable handheld work apparatus, the intake system comprising:

5 a carburetor having an intake channel defining an intake opening;

an air filter mounted upstream of said carburetor;

a filter case surrounding said air filter and having an inlet opening;

10 a cooling air fan unit of the engine for generating a flow of cooling air;

a combustion air channel having a take-up inlet in said cooling air fan unit;

said combustion air channel extending to said inlet opening of said filter case;

15 said filter case having an inner space and having ventilation opening means for connecting said inner space to the ambient air; and,

20 said ventilation opening means having a flow cross section so dimensioned that the air flows through said inlet opening, said intake opening of said carburetor and said ventilation opening means are balanced at rated rpm of said engine and that a uniform pressure level adjusts in said inner space of said filter case.

2. The intake system of claim 1, wherein the area of said ventilation opening means is matched to the volume of said filter case.

3. The intake system of claim 2, wherein said area is also matched to the piston displacement of said engine.

4. The intake system of claim 1, wherein the area of said ventilation opening means lies overall in the range of between 100 mm<sup>2</sup> and 800 mm<sup>2</sup>.

5. The intake system of claim 1, wherein the area of said ventilation opening means corresponds overall approximately to the cross-sectional area of said intake opening of said carburetor.

6. The intake system of claim 1, wherein said work apparatus has a usual position in which said work apparatus is held during operation thereof; and, said inlet opening lies above said ventilation opening means when referred to the gravity-force  
5 direction for said usual position.

7. The intake system of claim 1, wherein said ventilation opening means is arranged on an underside of said filter case.

8. The intake system of claim 1, wherein said inlet opening is arranged above said carburetor.

9. The intake system of claim 8, wherein said inlet opening is arranged also above said air filter.

10. The intake system of claim 1, wherein said cooling air fan unit and said take-up opening are so matched to said engine with said carburetor that at least a greater portion of the combustion

air inducted by said carburetor is moved through said combustion air channel.

11. The intake system of claim 10, wherein there is a matching for conveying the combustion air with excess.

12. The intake system of claim 1, wherein said combustion air channel projects into said inlet opening with play.

13. The intake system of claim 1, wherein said inlet opening has a peripheral edge; and, said combustion air channel and said peripheral edge conjointly define an ancillary ventilation opening.

14. The intake system of claim 1, wherein said combustion air channel is configured to be at least partially elastic.

15. The intake system of claim 1, wherein said combustion air channel has a section configured as folding bellows section.

16. The intake system of claim 1, further comprising a pre-separator mounted in the region of said take-up opening for separating out foreign particles entrained in the air flow conducted through said combustion air channel.

17. The intake system of claim 1, wherein said ventilation opening means comprises a plurality of openings.

18. The intake system of claim 1, wherein said ventilation opening means is configured as a sieve.

19. The intake system of claim 1, wherein said ventilation opening means comprises a single opening.

20. The intake system of claim 1, wherein ventilation opening means is disposed in said filter case at a location of low dust load.